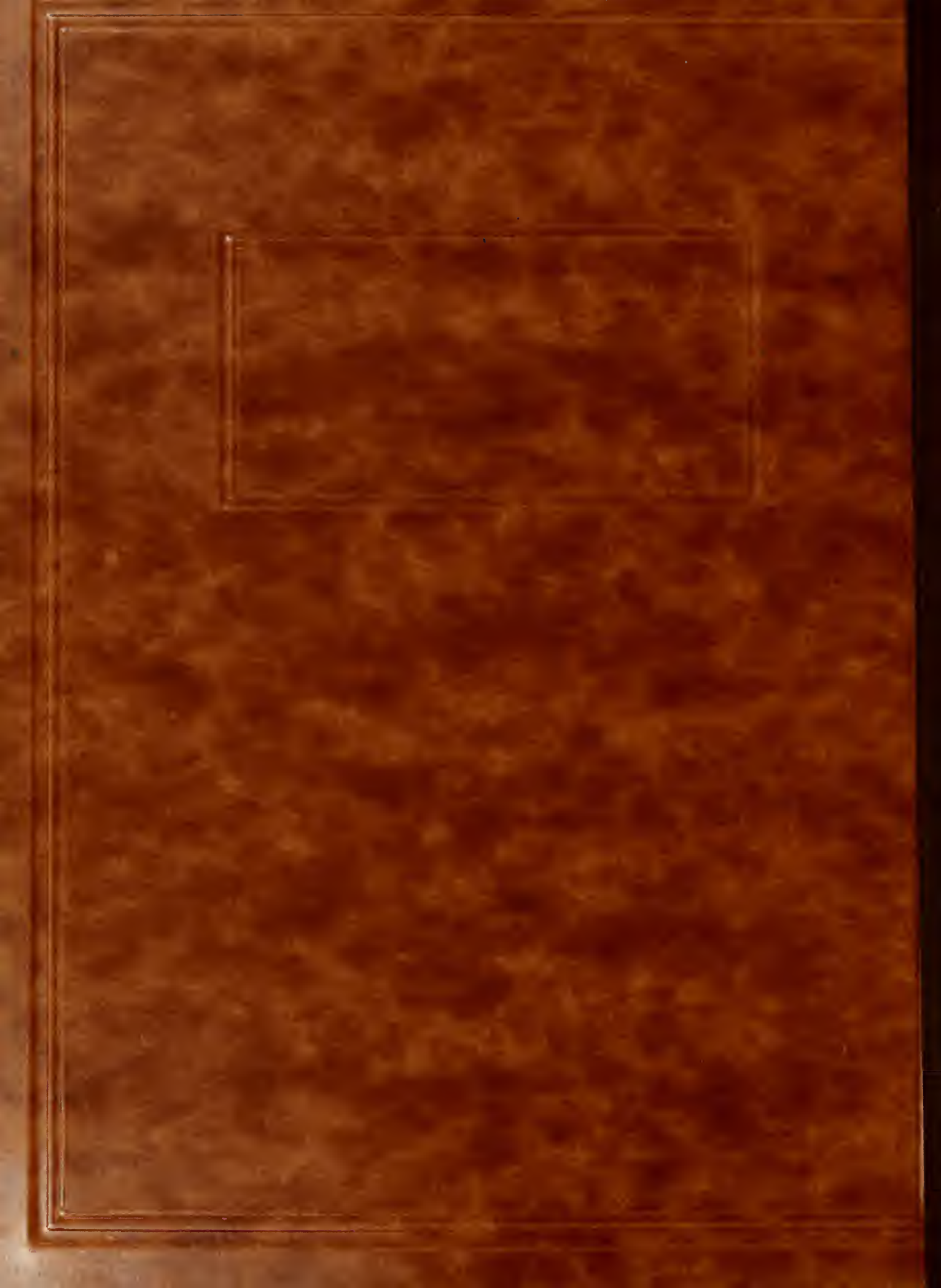BOSTON UNIVERSITY

GRADUATE SCHOOL

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Thesis

MATHEMATICAL TERMS AND NUMBERS IN SELECTED

CURRENT PERIODICALS

by

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CHAPTER I

THE PROBLEM, DATA, AND PROCEDURE

In deciding what material to include in the mathematics curriculum, social utility is one of many factors to be considered.[1] The social utility of mathematics is apparent in many everyday activities.[2] It is a factor in computing the mileage for our vacation trip, in telling time, in buying groceries, and in keeping score at athletic events or card games.

I. THE PROBLEM

Statement of the problem. The purpose of this study is to determine what mathematics there is in American general circulation periodicals.[3] In solving this problem, the following questions will be answered. What numbers and mathematical terms are there in current periodicals ? How frequently do they appear ?

This study does not propose to determine what is read by people. It merely seeks to describe the mathematical content of general circulation periodicals. After the existence of certain specific kinds of mathematics has been established, it will be argued that an understanding and familiarity with these types of mathematics is essential for intelligent reading.

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[1] Ernst R. Breslich, The Technique of Teaching Secondary School Mathematics (Chicago: The University of Chicago Press, 1919), p. 216.

[2] Guy M. Wilson, A Survey of the Social and Business Usage of Arithmetic (New York: Teachers College, Columbia University, 1919), 62 pp.

[3] J. Percy H. Johnson, editor, N. W. Ayer & Son's Directory Newspaper and Periodicals 1947 (Philadelphia: N. W. Ayer & Son Inc., 1947), pp. 1230-45

The curriculum builder will obviously be interested in having this information. These data plus other information pertinent to curriculum construction will enable him to make more reliable decisions, free from many assumptions, in establishing mathematical courses of instruction.

II. DEFINITIONS OF TERMS USED

Periodical of general circulation. All the periodicals considered in this study come under this heading. A periodical of general circulation is usually one that is of general interest. It is not restricted to any racial, religious, or occupational group and is not intended for a specific geographical area. A complete list of the magazines included under this heading may be found in "N. W. Ayer & Son's Directory Newspapers and Periodicals 1947".

Item. In this study the word "item" is defined to include all news or information appearing under one news title. It may be one or several paragraphs in length, and may be located on one or many different pages. An advertisement is not considered to be an item. Each recipe appearing within an item or advertisement is considered to be a separate item or advertisement.

Mixed number. A mixed number is one which is made up of whole number and a fraction. The mixed number 9-3/4 serves as an example.

Mixed decimal. A number consisting of a whole number and a decimal is a mixed decimal. The number 11.92 is an example.

Double integer. A number having anyone of the following forms 7^{95}, $7\underline{95}$, or 7^{95} is defined as a double integer. However, if the number has a

decimal point between the 7 and the 9 such as $7^{.95}$, it is considered a mixed decimal.

Term. A word, expression, symbol, or abbreviation used to designate a definite thing is called a "term" in this study.

Mathematical term. Any term having one or more of the following qualities is a mathematical term:

1. deals with magnitude, quantity, size, or number

2. deals with geometric figure, shape, or position

3. deals with part of geometric figure

4. deals with a unit of measure

5. deals with a number process

6. deals with accuracy, approximation, or precision

III. REVIEW OF PREVIOUS RELATED STUDIES

The mathematical content of newspapers and periodicals has interested many people at various times. Adams,[4] in the year 1924, analyzed one issue of each of twenty newspapers and periodicals to discover the mathematics employed in news, special articles, editorials, advertisements, legal notices, market reports, sporting pages et cetera. These newspapers and magazines were selected because of their diverse character. They were published in different parts of the country and were designed for different groups within the population. Most of Adam's findings were classified into

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[4] H. W. Adams, "The Mathematics Encountered in General Reading of Newspapers and Periodicals", (unpublished Master's thesis, Department of Education, University of Chicago, 1924), 150 pp.

sixteen groups under the heading "Arithmetic." These groups were: dates addresses, telephone numbers, numerals, money, common fractions, decimals, percentage, ratio, denominate numbers, mathematical terms, graphical representation, mathematical ideas or expressions, problems, and higher mathematics. Very little geometry was found. Per cent and Roman numerals were quite well represented in his report. These detailed findings were a positive contribution to those people interested in curriculum construction.

Bowden[5] made an investigation in 1929 to determine the actual uses made of arithmetic in adult social life exclusive of vocational uses. By means of a questionnaire listing typical arithmetical problems, he found out which of these problems were solved or used. Bowden concluded "that the schools have been teaching more than 85 per cent more arithmetic than is required for the accomplishment of the values which we have described under the life situations: Buying at the Store, Making Change, Reading, Investing One's Savings, Writing Letters, etc., and Traveling, etc." On the basis of this conclusion, he suggested that less pupils be held back from promotion on account of failures in arithmetic.

Two years later, Sueltz[6] analyzed the front pages of fourteen different newspapers to ascertain the knowledge of numbers exclusive of spelled-out numbers requisite for efficient reading. He found eighty-two different

[5] Aberdeen O. Bowden, Consumers Uses of Arithmetic (Teachers College Contributions to Education, No. 340. New York: Teachers College, Columbia University, 1929), 69 pp.

[6] Ben Sueltz, "Number Content of Front Pages of Newspapers," The Mathematics Teacher, 24: 99-102, February, 1931.

decimals. These decimals were mostly of one and two places and were combined with integers to form mixed decimals. Appearing half as frequently as the decimals were sixty-four fractions and mixed numbers. Close to half the fractions had a denominator of two; about a third had a denominator of four. Sueltz concluded that "there seems to be no basis for predicting what numbers may be found in any newspaper except that they are apt to be most any number between rather small decimals and large numbers in the billions."

In an effort to determine what arithmetic vocabulary is needed for understanding and appreciating the ordinary reading that elementary school children are asked to do, Woody[7] analyzed 13,298 pages of reading material contained in thirty-eight textbooks and nine issues of magazines written for jevenile readers. He made a list of mathematical terms encountered and compared it with other prominent lists.

As part of a study dealing with the use of decimals in industries, periodicals, and textbooks, M. E. Dalrymple[8] selected seven technical and seven non technical periodicals and analyzed them for their decimal content. Each periodical was examined for the following data: number of pages, uses of decimals, number of occurences of decimals, and the most difficult decimal used. Separate counts were kept of decimals appearing in articles and advertisements. M. E. Dalrymple also presents in this study data from

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7 Clifford Woody, "Nature and Amount of Arithmetic in Types of Reading Material for the Elementary School," Educational Outlook, 6: 199-217, May, 1932.

8 Marion E. Dalrymple, "A Study of the Present Use of Decimals in Industries Periodicals and Textbooks,", (unpublished Master's thesis, Boston University School of Education, 1933), 77 pp.

two of a dozen or more newspapers which he analyzed. All decimals appearing in newspapers were classified under the headings of per cent, average, measures, and money. As a result of this work Dalrymple concluded that "Technical periodicals make use of a skillful knowledge of decimals not found in periodicals classified as non technical, but only reading is required . . . Decimals found in newspapers are almost exclusively in statistics made by experts, others merely read them." It would appear that the character of the periodicals sampled was poor. Five of the fourteen magazines chosen may be classified as educational literature. Certainly this heavy bias towards educational reading matter does not give a true picture of decimals in periodicals.

An examination of all the issues of Life Magazine for the year 1940 by De Loach[9] to determine what scientific information is present revealed among other things, that there was but one mathematics article of two pages in length. De Loach did not describe this article. His major findings were in the fields of Physical and Biological Schience. As this study was of a descriptive nature, it did not contain any recommendations.

Bertotti[10] examined six consecutive issues of the Readers Digest to find out what mathematical terms appeared. Terms having any of the following properties were considered mathematical:

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9 W. S. De Loach, "The Scientific Articles in a Popular Magazine," Science Education, 25: 273-274, October, 1941.

10 Joseph M. Bertotti, "The Mathematics Vocabulary of Current Periodical Literature," The Mathematics Teacher, 34: 317, November, 1941.

1. dealt with magnitudes, quantities, and numbers

2. dealt with operations with numbers

3. dealt with properties of form and space

4. dealt with units of measure

5. dealt with names of persons involved in mathematical operations

6. dealt with expressions that could be expressed by means of a
    formula or equation

7. dealt with prefixes of a strictly mathematical nature

To eliminate the subjective element in selecting terms, another competent person analyzed the same magazines using the same criteria as a guide. Bertotti is to be commended on the criteria he has developed as well as on the means he employed to remove the subjective element.

In the six periodicals, Bertotti found 360 different mathematical terms. These terms were tallied a total of 3130 times. Those having frequencies of fifty or more were: "percent," "foot," "debt," "tax," "cent," "increase," and "dollar."

Some of Bertotti's conclusions and recommendations were as follows:

1. Even though only 1 per cent of the words found in the six issues
    of the magazine were mathematical terms, it would not be
    possible to read intelligently the articles contained in these
    magazines unless the reader possessed a definite meaning of
    these same mathematical terms.

2. The teaching of mathematical vocabulary is a problem that all
    teachers in our schools, first grade through high school, must
    contend with.

3. Teachers in our schools should study materials appearing in
    magazines, newspapers, etc., so as to be able to determine
    better the technical vocabularies that we should teach in order

to enable our pupils to read such literature intelligently.

4. Efforts should be made to build up definite grade vocabularies in
mathematics so that teachers may be able to determine with some
degree of accuracy the vocabulary to be mastered in the
particular grade levels in which they teach.

After reading of these past studies one may wonder why this study,
which is similar to these just reviewed, was made. Assuming that previous
studies were perfect in all respects, there would still be need for a study
of the type performed. This study is of value in determining the present
status of mathematics in periodicals.

IV. SELECTION OF DATA

One of the major difficulties in the solution of this problem has
been the selection of an adequate and representative sample. Many factors
were considered. Circulation was perhaps the first criterion applied to a
potential component of the sample. The relatively high circulations of the
periodicals selected has helped considerably in establishing a sample that
is read by a large segment of the American people. Time and Woman's Home
Companion were selected as the reading matter of men and women of above
average intelligence and income. Pic and True Confessions were chosen to
represent the men and women of average or below average income and intelli-
gence. For those people whose interests lie in doing practical things
around the home, Popular Mechanics and Good Housekeeping were picked. To
represent the reading material of the American rural population, Country
Gentleman, with its separate sections for men and women, was chosen. No

attempt has been made to obtain periodicals specifically designed for people below adult level.

These selected publications represent in their entirety the investigators subjective opinion of a sample which will yield mathematical information typical of American periodicals.

It has been decided to analyze the October, 1948 issue of the monthly magazines selected. In the case of the weekly magazine, the first issue for the month of October was chosen.

V. THE PROCEDURE

The following is the procedure used in analyzing and compiling data.

A. Separate counts were kept of the total number of the following:

    1. items analyzed

    2. advertisements analyzed

B. A number or term was tallied but once in an item or advertisement even though it appeared several times within that item or advertisement. This was done to reduce the bias that could have resulted from a few items or advertisements heavily flavored with mathematics.

C. Indices and page numbers because of their obvious number content were excluded from analysis.

D. Numbers and terms were counted separately as they appeared in the following:

    1. items

TABLE I

MAGAZINES OF GENERAL CIRCULATION SELECTED FOR ANALYSIS

PERIODICAL	CIRCULATION[1]	PERIOD OF ISSUE	DATE OF ISSUE	NO. OF PAGES[2]	NO. OF ADS	NO. OF ITEMS
Country Gentleman	2,122,753	Monthly	October, 1948	204	468	164
Good Housekeeping	2,794,565	"	" "	362	548	210
Pic	589,357	"	" "	126	117	156
Popular Mechanics	913,613	"	" "	360	1882	205
Time	1,554,323	Weekly	October 4, 1948	116	110	132
True Confessions	1,733,579	Monthly	October, 1948	132	190	62
Woman's Home Companion	3,691,238	"	" "	196	292	108
TOTALS				1496	3607	1037

1 Based on data in "N. W. Ayer & Son's Directory Newspapers and Periodicals 1947".

2 These figures include front and back covers of periodicals.

    2. advertisements

E. Integers were grouped into the following classes and tallied

   accordingly:

    1. one-place integers

    2. two-place integers

    3. three-place integers

    4. four-place integers

    5. five-place integers

    6. six-place integers

    7. seven-place integers

    8. eight-place integers

    9. nine-place integers

   10. ten-place integers

F. Decimals were grouped and counted in the following categories:

    1. one-place decimals

    2. two-place decimals

    3. three-place decimals

    4. four-place decimals

G. Fractions were grouped and counted under the various forms in

   which they appeared.

H. A mixed decimal was counted under the headings Integer, Decimal,

   and Mixed Decimal. For example, the number 165.87 was tallied

   as a three-place integer, a two-place decimal, and a mixed

   decimal.

I. A mixed number was counted under the three headings Integer, Fraction, and Mixed Number. The number 91-3/4 was tallied as a two-place integer, a fraction under the headings 3/4, and as a mixed number.

J. A double integer such as 149⁶⁵ was counted as two separate numbers and as a double integer. In this instance, tallies would be placed in the columns headed Two-Place Integer, Three-Place Integer, and Double Integer.

K. Individual records were kept of the different Roman numerals noted.

L. Mathematical terms were classified and tallied under the following headings:

1. abbreviations

2. accuracy, approximation, and precision

3. area

4. cardinal numbers

5. general expressions of magnitude and quantity

6. geometry

7. industrial and scientific units

8. length

9. liquids

10. miscellaneous mathematical terms

11. monetary units

      12.   ordinal numbers and fractions

      13.   physical size

      14.   speed

      15.   symbols

      16.   time

      17.   volume

      18.   weight

M. Multi-meaning words such as "foot," "yard," "knot," "line," and "angle" were only tallied when, from their contexts, they were clearly mathematical. Consider the word "foot." When it referred to a part of the body, it was not counted; when it referred to a unit of length, it was.

N. Words having more than one mathematical meaning were tallied separately for each meaning. Consider the word "second." When it referred to the second in a series, it was tallied as an ordinal number. However, when it referred to a unit of time it was tallied as such.

O. Adverbs ending in "ly" were tallied under the base words from which they were derived. The word "doubly" was tallied under the word "double."

P. The comparative and superlative forms of an adjective were tallied under the base form when there was much similarity between these forms and the base. As an example, the terms

"bigger" and "biggest" were tallied under "big."

Q. Participles were tallied under their base forms. We have the words "measuring" and "doubling" as examples. They were tallied as "measure" and "double."

R. Plural words formed by adding "s" or "es," or by dropping the "y" and adding "ies," were considered under their singular forms. Hence, when the word "pennies" was noticed, it was tallied under the heading "penny."

S. Verbs to which "d" or "ed" had been added to form adjectives or past tenses were grouped according to their infinitive forms. Hence, the words "counted" and "calibrated" were recorded as "count" and "calibrate."

T. Words that appeared both as one and as two words were tallied as one. The words "blueprint" and "blue print," "percent" and "per cent," serve as examples. They were counted under the forms "blueprint" and "percent."

U. Words such as "half-pint" and "half a million" in which the prefix and suffix were mathematical, were broken up and tallied by parts. The word "half-pint" was tallied under "half" and under "pint."

V. Cardinal numbers were counted separately as they appeared.

W. Because of their similarity, ordinal numbers and fractions were grouped and tallied together.

X. Numbers greater than one hundred were broken up into their

various components and tallied separately. The number "a
thousand two hundred and fifty-six" (1256) serves as an
example. It was tallied under the headings thousand, hundred,
fifty-six, and two.

VI. ORGANIZATION OF REMAINDER OF THESIS

Chapter II gives a detailed summary of the various types of numbers
in periodicals. Integers, fractions, decimals, double integers, mixed
numbers, mixed decimals, and Roman numerals are included.

An account of mathematical words, abbreviations, and symbols in the
s lected magazines is given in Chapter III.

Significant findings, conclusions, and recommendations are presented
in Chapter IV.

CHAPTER II

NUMBERS

This chapter deals with the four major types of numbers, the integers, the fractions, the decimals, and the Roman numerals, found in periodicals. In addition, various combinations and forms of these types such as mixed decimals, mixed numbers, and double integers are also considered.

I.   INTEGERS AND DOUBLE INTEGERS

Table II is a summary of all integers found in the selected magazines. An examination of the totals in this table reveals that two-place integers appeared most frequently. They were followed with decreasing frequencies by one-place, three-place, four-place, five-place, six-place, and seven-place integers. As the sample analyzed was comparatively small, the downward trend beyond the seven place integers was erratic. However, it seems reasonable to assume that the decreasing counts would have continued more regularly had a larger sample been taken.

On the average, in every six advertisements analyzed there were at least 10 two-place integers. Similarly, in every twenty-one items there appeared at least 37 two-place integers.

When the frequencies for one- and two-place integers are combined and compared with the sum of the remaining frequencies, it is noted that five out of every seven integers tallied was either a one-or two-place integer.

It is interesting to state that many of the four-place integers tallied were being used as dates, style and model numbers, and addresses.

TABLE II

INTEGERS FOUND IN SELECTED PERIODICALS

PERIODICAL	NUMBER OF ADS	ITEMS	1 PLACE ADS	ITEMS	2 PLACE ADS	ITEMS	3 PLACE ADS	ITEMS	4 PLACE ADS	ITEMS
Country Gentleman	468	164	628	335	771	416	298	199	190	178
Good Housekeeping	548	210	758	553	853	409	476	82	154	28
Pic	117	156	195	140	250	299	92	123	92	153
Popular Mechanics	1882	205	2556	264	3296	230	1420	105	912	63
Time	110	132	126	110	142	217	56	57	51	135
True Confessions	190	62	312	70	444	137	104	15	43	12
Woman's Home Companion	292	108	512	204	463	149	132	74	83	50
TOTALS	3607	1037	5097	1676	6219	1857	2578	655	1525	619

PERIODICAL	NUMBER OF ADS	ITEMS	5 PLACE ADS	ITEMS	6 PLACE ADS	ITEMS	7 PLACE ADS	ITEMS	8 PLACE ADS	ITEMS	9 PLACE ADS	ITEMS	10 PLACE ADS	ITEMS	DBL. INTG. ADS	ITEMS
Country Gentleman	468	164	20	30	9	11	8	3	2	4	1	8	1	4	40	
Good Housekeeping	548	210	8	7	4	8	4	4	1	1	1				37	
Pic	117	156	5	37	4	8	7		8		1				18	
Popular Mechanics	1882	205	70	16	21	6	6	14	2		3				172	
Time	110	132	8	18	4	11	5	19	2	1		4			2	
True Confessions	190	62	2		3	1					3				21	
Woman's Home Companion	292	108	4	3	3		4								19	
TOTALS	3607	1037	117	111	48	45	27	47	6	14	4	17		4	309	

NOTE: This table should be read as follows: in the 468 advertisements in Country Gentleman Magazine, there were found at least 628 one-place integers, 771 two-place integers, 298 three-place integers, et cetera.

Most of the seven-place integers in advertisements were employed as pattern numbers. An advertisement in Good Housekeeping magazine yielded 259 three-place integers and 90 two-place integers.

Double integers or numbers having the forms 7^{95}, $7\underline{95}$, or $7^{\underline{95}}$ were discovered exclusively in advertisements. Approximately one of these numbers appeared in every twelfth advertisement analyzed.

II. FRACTIONS AND MIXED NUMBERS

Fractions appeared often within the periodicals studied. In the 4644 advertisements and item examined, at least 1431 fractions (not all different) were counted. Many of them, 634 to be exact, were combined with integers to form mixed numbers. Their uses seemed to vary with the magazines. In Woman's Home Companion and Good Housekeeping magazines, the majority of them were noticed in recipes. Popular Mechanics, with its leaning toward the mechanical, utilized fractions to a large extent in measurements of distances. The few numbers of this type in Pic magazine were also employed in referring to distances.

Table III gives a detailed breakdown of the fractions found. A glance at the totals in this table shows that the fraction 1/2 was tallied most. It was followed by 1/4, 3/4, 1/8, 1/3, 3/8, 5/8, 2/3, and 3/16 in the order mentioned. The absence of the fractions 2/5, 3/5, 4/5, 5/6, 2/7, 3/7, 4/7, 5/7, 6/7, 1/9, 2/9, 4/9, 5/9, and 7/9 is significant. Not one of these numbers was noted in this study. Another point of importance is the comparative strength of the fractions whose denominators are 16 and 32. Even though these fractions were noticed to a considerable extent in Country

TABLE III

FRACTIONS FOUND IN SELECTED PERIODICALS

PERIODICAL	NUMBER OF A	I	1/2 A	I	1/3 A	I	2/3 A	I	1/4 A	I	3/4 A	I	1/5 A	I	1/6 A	I	1/7 A	I	1/8 A	I
Country Gentleman	468	164	45	41	6	6	3	3	10	21	7	6							2	8
Good Housekeeping	548	210	52	123	3	14	3	2	15	54	3	22							6	27
Pic	117	156	8	2					2	1	2	1								
Popular Mechanics	1882	205	193	35	15	2	2	2	74	25	53	18	5		1	2	1		23	13
Time	110	132	1	2	1	3	3	3	2	1										
True Confessions	190	62	13	4			1	1	1	5	2	1	1	1						1
Woman's Home Companion	292	108	65	40	5	3	2	2	17	19	11	12					1		5	7
TOTALS	3607	1037	377	247	30	28	14	13	121	126	78	60	6	1	1	2	1		36	56

PERIODICAL	NUMBER OF A	I	3/8 A	I	5/8 A	I	7/8 A	I	1/10 A	I	1/12 A	I	1/14 A	I	1/15 A	I	1/16 A	I	3/16 A	I
Country Gentleman	468	164		2			2	2			1	1								2
Good Housekeeping	548	210		1	1										1			1		
Pic	117	156																		
Popular Mechanics	1882	205	24	12	28	10	6	3	2	1	1	1	1	1			8	5	20	5
Time	110	132																		
True Confessions	190	62																		
Woman's Home Companion	292	108		3		3	2	2	1											
TOTALS	3607	1037	24	18	29	13	10	7	3	1	2	2	1	1	1		8	6	20	7

1 A stands for "Advertisement".

2 I stands for "Item".

NOTE: This table is read thus: in the 468 advertisements in Country Gentleman Magazine, the fraction 1/2 was found at least forty-five times.

TABLE III (Continued)

FRACTIONS FOUND IN SELECTED PERIODICALS

PERIODICAL	NUMBER OF		5/16		7/16		9/16		11/16		13/16		15/16		16/24		1/25		1/28	
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I
Country Gentleman	468	164		2																
Good Housekeeping	548	210																		
Pic	117	156																		
Popular Mechanics	1882	205	12	1	2	2	2		3		2		1	1	1	1			1	1
Time	110	132																1		
True Confessions	190	62																		
Woman's Home Companion	292	108				1		1		1										
TOTALS	3607	1037	12	3	2	3	2	1	3	1	2		1	1	1	1		1	1	1

PERIODICAL	NUMBER OF		1/30		1/32		3/32		5/32		9/32		11/32		13/32		25/32		31/32	
	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I	A	I
Country Gentleman	468	164						1												
Good Housekeeping	548	210																		
Pic	117	156																		
Popular Mechanics	1882	205	3		1	3	7	2	5		1		2		1				1	
Time	110	132																		
True Confessions	190	62																		
Woman's Home Companion	292	108	1														2			
TOTALS	3607	1037	4		1	3	7	3	5		1		2		1		2		1	

1 A stands for "Advertisement".

2 I stands for "Item".

NOTE: This table is read thus: in the 468 advertisements in Country Gentleman Magazine, the fraction 1/2 was found at least forty-five times.

TABLE III (Continued)

FRACTIONS FOUND IN SELECTED PERIODICALS

PERIODICAL	NUMBER OF A[1]	I[2]	1/40 A	I	1/64 A	I	3/64 A	I	5/64 A	I	13/64 A	I	1/100 A	I	3/100 A	I	44/100 A	I	90/100 A	I
Country Gentleman	468	164																		
Good Housekeeping	548	210															1			
Pic	117	156																		
Popular Mechanics	1882	205			2	2	1		1		1		1		1					
Time	110	132																		
True Confessions	190	62															1			
Woman's Home Companion	292	108	1														2		1	
TOTALS	3607	1037	1		2	2	1		1		1		1		1		4	1	1	1

PERIODICAL	NUMBER OF A	I	1/200 A	I	3/1000 A	I	5/1000 A	I	MIXED NUMBERS A	I
Country Gentleman	468	164							46	36
Good Housekeeping	548	210							45	99
Pic	117	156							6	4
Popular Mechanics	1882	205	1			1	1		229	56
Time	110	132							3	5
True Confessions	190	62							13	1
Woman's Home Companion	292	108							56	35
TOTALS	3607	1037	1			1	1		398	236

1 A stands for "Advertisement".

2 I stands for "Item".

NOTE: This table is read thus: in the 468 advertisements in Country Gentleman Magazine, the fraction 1/2 was found at least forty-five times.

TABLE IV

GROUPS OF FRACTIONS APPEARING IN SELECTED PERIODICALS

FRACTION	FREQUENCY		PER CENT OF TOTAL FREQUENCY	
1/2	624		44	
1/3	58		4	
2/3	27		2	
1/3 & 2/3 combined		85		6
1/4	247		17	
3/4	138		10	
1/4 & 3/4 combined		385		27
1/8	92		6	
3/8	42		3	
5/8	42		3	
7/8	17		1	
1/8, 3/8, 5/8, & 7/8 combined		193		13
1/16	14		1	
3/16	27		2	
5/16	15		1	
7/16, 9/16, 11/16, 13/16, & 15/16 combined	16		1	
1/16, 3/16, 5/16, 7/16, 9/16, 11/16 13/16 & 15/16 combined		72		5
All others	72		5	
TOTALS	1431		100	

NOTE: This table is to be read: the fraction 1/2 appeared at least 624 times which was forty-four per cent of total count for fractions.

Gentleman and Popular Mechanics magazines, their total frequency as compared with the combined frequencies of those fractions whose denominators are 5, 6, 7, and 9 is indeed important.

The following facts of a minor nature with respect to the entire study, but perhaps of major importance to those seeking detailed data, are also mentioned. The fraction 1/7 was scored but once; it helped specify the horsepower of a small diesel engine. The fraction 44/100 was used to describe the purity (99-44/100% pure) of a well known soap. An article on the Johansson Blocks yielded the fractions 3/1000 and 5/1000.

Table IV gives a clearer picture of the outstanding points in Table III. One is able to see that the fraction 1/4 was tallied 247 times or accounted for seventeen per cent of all the tallies made for fractions. Fractions whose denominators were 2, 3, 4, and 8 comprised ninety per cent of the total number of fractions found in periodicals.

III. DECIMALS AND MIXED DECIMALS

The second most prominent type of number found in periodicals was the decimal. Usually, although not always, it was combined with an integer to form a mixed decimal. About ninety-three per cent of all decimals tallied were two-place decimals. The one-, three-, and four-place decimals followed in this order. No other decimals were noted. As was to be expected, the mixed decimals, particularly those made up of an integer and a two-place decimal, were employed considerably in describing the costs of articles and services. Other decimals were used in baseball averages, in describing the calibers of guns, the sizes of bushings, the contents of a toothpaste tube,

TABLE V

DECIMALS FOUND IN SELECTED PERIODICALS

PERIODICAL	NUMBER OF		1 PLACE		2 PLACE		3 PLACE		4 PLACE		MIXED DECIMALS	
	ADS	ITEMS	ADS	ITEMS	ADS	ITEMS	ADS	ITEMS	ADS	ITEMS	ADS	ITEMS
Country Gentleman	468	164	15	32	141	86	3	1			158	107
Good Housekeeping	548	210	2	1	193	8					177	9
Pic	117	156	1	24	80	48					81	70
Popular Mechanics	1882	205	11	8	1299	11	12	23	4	3	1253	15
Time	110	132	3	11	27	15		4			30	26
True Confessions	190	62			94	5					94	5
Woman's Home Companion	292	108			99	13					94	13
TOTALS	3607	1037	32	76	1933	186	15	28	4	3	1887	245

NOTE: This table is read in the following manner: in the 468 advertisements in Country Gentleman magazine at least fifteen 1 place decimals were found.

and the proof of a whiskey.

IV. ROMAN NUMERALS

The least common of the numbers in the periodicals examined were the Roman numerals. Only eighty-two of these numbers were counted. Twelve of them (I . . . XII), referring to the volume numbers of a set of books, appeared together in one advertisement in Pic magazine. The same twelve were noted in a similar advertisement in Popular Mechanics. A clock's face, in an advertisement, in True Confessions magazine, accounted for another twelve. Roman numerals I and II were found a great deal in such phrases as "World War I"and "World War II". A few numerals were associated with names such as Wilhelm II, Henry VII, and Louis XV. The numbers LII and LXXV referred to volume numbers of magazines.

TABLE VI

ROMAN NUMERALS FOUND IN SELECTED PERIODICALS

PERIODICAL	NUMBER OF A[1]	NUMBER OF I[2]	I A	I I	II A	II I	III A	III I	IV A	IV I	V A	V I	VI A	VI I	VII A	VII I	VIII A	VIII I
Country Gentleman	468	164		1		2		1										
Good Housekeeping	548	210		1		1												
Pic	117	156	1	4	2	4	1	1	1	1	1	1	1	1	1	1	1	
Popular Mechanics	1882	205	1	3	6	5	1		1		1		1		1		1	
Time	110	132		3		4												
True Confessions	190	62		1	1													
Woman's Home Companion	292	108	1				1		1		1		1		1		1	
TOTALS	3607	1037	3	13	9	16	3	2	3	1	3	1	3	1	3	1	3	

PERIODICAL	NUMBER OF A	NUMBER OF I	IX A	IX I	X A	X I	XI A	XI I	XII A	XII I	XIV A	XIV I	XV A	XV I	LII A	LII I	LXXV A	LXXV I
Country Gentleman	468	164																
Good Housekeeping	548	210										1						
Pic	117	156	1		1		1		1					1				
Popular Mechanics	1882	205	1		1		1		1									
Time	110	132										1				1		2
True Confessions	190	62																
Woman's Home Companion	292	108	1		1		1		1									
TOTALS	3607	1037	3		3		3		3			2		1		1		2

1 The letter A stands for "Advertisement".

2 The letter I stands for "Item".

NOTE: The above table is read in this manner: in the 205 items in Popular Mechanics Magazine, the Roman numeral I appeared at least three times.

CHAPTER III

MATHEMATICAL TERMS

Mathematical terms were found in surprisingly large numbers in the periodicals examined. Almost every item and advertisement examined had at least one mathematical term. Many, if not most, units contained several words, abbreviations, and symbols. It is the purpose of this chapter to present a summary of these findings.

I. CARDINAL NUMBERS, ORDINAL NUMBERS,

AND FRACTIONS

In Chapter II a description was given of the Arabic and Roman numerals in the selected periodicals. The counterparts of those numbers, the written or spelled-out numerals, are the subject of this section.

Cardinal numbers were the largest group of number words revealed by this study. Within this group the numbers one to ten appeared most often. Beyond these, a tendency was noticed for relatively high frequencies to be located at the multiples of ten. Thus, we note the comparatively high counts for "twenty", "thirty", "forty", et cetera. The terms "hundred", "thousand", "million", and "billion" were well distributed throughout the magazines and also enjoyed large scores. It should be stated that very few numbers above a hundred, with the exception of the rounded ones discussed in the previous sentence, were noted. About half the count for the number "zero" was due to its use in temperature expressions.

The second largest group of spelled-out numbers discovered were the

TABLE VII

CARDINAL NUMBERS FOUND IN SELECTED PERIODICALS

NUMBER	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A^1	I^2	A	I	A	I	A	I	A	I	A	I	A	I	
zero	5	1	1				1	1						1	10
one	90	67	87	57	28	64	158	62	24	44	35	26	65	34	841
two	44	62	49	48	14	40	67	54	16	35	18	16	39	18	520
three	23	50	28	27	5	19	36	21	6	23	3	9	17	17	284
four	11	33	17	14	3	20	32	20	5	17	2	5	13	9	201
five	12	24	10	13	3	15	28	13	2	12	2	4	5	12	155
six	12	25	13	8	3	11	17	12	2	8	3	2	5	6	127
seven	1	13	8	5	2	9	8	2	2	4	1	2	2	5	64
eight	2	24	7	8	1	7	7	1	1	4		3	2	7	74
nine	3	10	1	1		6	4	1		5		1	1	5	38
ten	10	15	4	11	4	7	18		2	10	4	8	7	10	110
eleven		2		3		2	1			1				4	13
twelve	3	8		4	2	4	3		1	7		3		4	39
thirteen		3								1				2	6
fourteen		1					2				1	1		1	6
fifteen		8	3	3	2		2					3		3	24
sixteen	2	2		1							1		1	4	11
seventeen				1			2					1			4
eighteen		3		1			1					1		2	8
nineteen		1		1											2
twenty	2	8		7	1	6	2	1	1		1	2	1	11	43
twenty-one				1								1			2
twenty-two		1		2										1	4
twenty-four		3				1								3	7
twenty-five		3		1	1	1	3					1		3	13
twenty-six		1												2	3
twenty-seven		1		1			1								3
twenty-eight		1		2											3
thirty		6		4		4	2				1	1		4	22
thirty-one								1							1
thirty-two						1								2	3
thirty-three												1			1
thirty-four		1				1								1	3
thirty-five	1	1												1	3
thirty-six		2												1	3
thirty-seven		1					1								2
thirty-eight		2							1						3

TABLE VII (Continued)

CARDINAL NUMBERS FOUND IN SELECTED PERIODICALS

NUMBER	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
thirty-nine					1										1
forty	2	3		4		3	4		1			1		5	23
forty-three				1										1	2
forty-four				1					1						2
forty-five		1		1	1									2	5
forty-six				1											1
forty-eight		1									1				2
fifty	2	6	1	7		1	4	1	2			3		3	30
fifty-one							1		1						2
fifty-two	1										1				2
fifty-six				1		1							2		4
sixty	1	4	1	1		2							3		11
sixty-three													1		1
sixty-four								1							1
sixty-five	1	1										1		1	4
seventy		2		1		1								2	6
seventy-three		1													1
seventy-five		1												1	2
eighty		2				1		1						2	6
eighty-one		1												1	2
eighty-three		1												1	2
eighty-seven		2													2
ninety	2	2		1										1	6
ninety-one		1													1
ninety-three		1													1
hundred	10	23	4	9	5	7	55	7	3	1	1	6	3	11	145
thousand	23	27	12	9	4	7	74	6	8	1	11	4	7	7	200
million	25	13	25	14	1	8	17	7	6	18	6	2	18	3	163
billion		3				2		1	3	4		1	1	1	16

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE VIII

ORDINAL NUMBERS AND SPELLED-OUT FRACTIONS NOTICED IN SELECTED PERIODICALS

TERMS	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
first	14	35	32	34	3	30	50	25	8	30	12	14	23	18	328
second	4	19	4	13	1	13	7	10		9	3	8	3	10	114
half	10	25	10	26	1	20	15	6	2	5	3	10	13	22	168
one half		1		1			1	3			1		1		8
halves		1	3	16	1			1					1	4	27
third	2	8		7		6	3	2	4	6		5	1	6	50
one third	2	2	1	2		3			1	1	1			1	14
two thirds	1	1	1	1					2						6
fourth	3	4	2	3	1	2	5			2		2		3	27
one fourth		2				1	1								4
three fourths				1											1
quarter	2	4	3	9		3	3	2		2		2	1	3	32
one quarter															
three quarters		3	1	1		1				1					7
fifth	5	3	4	4	7	2	9		4	3	5	1	12	1	60
one fifth		1													1
two fifths														1	1
sixth				2			5			1	1	1			10
seventh			1				2			1	3			1	8
eighth		2	3	6		1			1	3				1	17
one eighth		1													1
seven eighths		1													1
ninth				1						1					2
tenth		3		1			1			2				1	8
one tenth								1							1
two tenths								1							1
eight tenths		1													1
nine tenths		1													1
twelfth				1						1					2
fifteenth					1									1	2
eighteenth								1							1

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE VIII (Continued)

ORDINAL NUMBERS AND SPELLED-OUT FRACTIONS NOTICED IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	I[2]	GOOD HSKPG. A	I	PIC A	I	POP. MECH. A	I	TIME A	I	TRUE CONF. A	I	WOMAN'S COMP. A	I	TOTALS
nineteenth														1	1
twentieth			1		1										2
twenty-first			1												1
twenty-eighth			1												1
fortieth	1														1
forty-eighth			1												1
forty-ninth			1												1
fifty-first			1												1
fifty-fifth													1		1
fifty-sixth													1		1
fifty-seventh	1												1		2
sixty-seventh													1		1
seventieth													1		1
thousandth					1		2		1						4
one thousandth							1								1
millionth							1								1
two millionth							1								1
one trillionth							1								1

[1] A stands for "Advertisement".

[2] I stands for "Item".

ordinal numbers. These, in turn, were followed by the fractions. Many of the ordinal numbers were associated with street or avenue names. "Fifth Avenue", a very popular expression in advertisements, was employed in connection with the home addresses of many business concerns. Fractions had several varied uses. Appearing in recipes and accounting for many of the fractions listed in Table VIII were such phrases as "to cut in half", "to quarter", and "to cut in eighths".

II. EXPRESSIONS OF ACCURACY, APPROXIMATION, AND PRECISION

We often find it necessary to qualify statements we make by utilizing such expressions as "about", "almost", "around", and "roughly". Similarly, periodical writers have also made some use of this class of words. Ten of the terms listed in Table IX come under this category. In the periodicals studied, these words were closely associated with numbers and were employed to indicate that absolute accuracy was not present.

III. EXPRESSIONS ASSOCIATED WITH LENGTH

The nine different units of length found in the seven chosen periodicals were "inch", "foot", "mile", "yard", "knot", "rod", "centimeter", "kilometer", and "pace". By far the most frequently appearing unit was the "inch". It was counted 218 times or close to double the tally for the next most popular unit "foot" (or feet). "Mile" and "yard" with frequencies of 102 and 46 respectively were third and fourth in popularity. The remaining units appeared but once or twice each.

TABLE IX

EXPRESSIONS OF ACCURACY, APPROXIMATION, AND PRECISION
FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
about	11	29	35	59	5	15	9	20		4		8	12	18	225
accuracy					3	1	8	4	2						18
accurate	13	2	7	2	2	3	32	10	3		1	1	2	4	82
almost	20	22	9	14	3	9	18	16	8	21	2	9	4	11	166
approximately		8	2	2	1	3	12	8	3				1	3	43
around	1	4		1		2	1	1		2				1	13
barely														1	1
correct	2		4	2			4	4							16
exact	12	2	10	4	2	3	6	9	2	2		3	5	5	65
inaccuracy						1									1
in round figures				1											1
margin for error									1						1
miscount												1			1
nearly	9	7	3	4		3	8	3	2	5		1		9	53
practically	3	1	1				4							1	10
precise								1		1					2
precision	8		2			1	44	1	2						58
right (correct)	3	1	3	2			2	2			1		2		16
roughly								2		2					4
some (about)	2	3		1		3		1		1					11
tolerance							1	1	1						3

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE X

EXPRESSIONS ASSOCIATED WITH LENGTH FOUND IN SELECTED PERIODICALS

EXPRESSIONS	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
centimeter								1							1
clearance							2	4							6
deep	10	6	6	4		2	5	6				2	2	3	46
depth	4	1	1	2			6	5						2	21
dimensions	1	1		1			7	7	1				1	1	20
distance	1	4		2		6	5	10	1					2	31
English units of measurement								1							1
feet	4	14	3	5		3	10	13	6	1		1	4	4	68
foot	2	9	1	3		5	10	8	2	1		2		2	45
height	2	2	7	3	1	4	5				1		2	2	29
high	2	6	2	2	2	2	19	7	1	3		2	1	4	53
inch	15	40	22	11	4	7	45	24	3	2	8	6	15	16	218
kilometer														1	1
knot							1			1					2
lanky		1					1								2
length	4	6	13	6	2	5	22	17	1		5	2	7	5	95
lengthwise			1	10				1				1	1		14
linear feet							1								1
linear inch		1													1
long	9	11	8	20	8	12	32	27	3	6	12	9	8	6	171
low	1	1	2	5	1		1	4	2	1			1	2	21
measurement	1		2	4			3	3				1	2	1	17
metric units of measurement								1							1
mile	12	12	2	3	1	10	23	17	6	5		5	3	3	102
mileage	2						12	2	1					1	18
pace														1	1
paper-thin				1											1
rod		1												1	2
short	1	2	4	5	1	4	2	6			1	3	3	4	36
tall	2	2	3	7	1	5	2	5				2	5	6	40
thick	3	5	9	4	3		7	6	2	1			4	3	47

[1] A refers to "Advertisement".

[2] I refers to "Item".

TABLE X (Continued)

EXPRESSIONS ASSOCIATED WITH LENGTH FOUND IN SELECTED PERIODICALS

EXPRESSIONS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
thickness	6	3	2	4		1	7	5	1				1		30
thin	2	2	7	10			1	2	2	1	1	9	6	8	51
wide	7	11	5	9	3	2	21	8	7			2	6	8	89
width	6	4	11	2	5		11	3			1		8	1	52
yard	2	5	9	6		6	1	7	3				3	4	46
yardage					1		2								3

[1] A refers to "Advertisement".

[2] I refers to "Item".

IV. EXPRESSIONS ASSOCIATED WITH AREA

To specify quantities of area, few expressions were found. The term "acre" tallied sixty times and appearing in six out of the seven periodicals analyzed was the most common area unit noted. "Square foot", "square feet", and "square inch" were units having frequencies of five, five, and seven respectively. Counted but once each were the terms "square mile" and "square yard". Some expressions such as "foot and a half square" and "15 inch squares" were also recorded.

V. EXPRESSIONS ASSOCIATED WITH VOLUME

A summary of volumetric units and expressions found in periodicals is the subject of this section. Two units of dry measure, "bushel" and "peck" were noted to a rather limited extent. "Bushel" was counted fourteen times in Country Gentleman and once each in Good Housekeeping and Time; "peck" was tallied once in Country Gentleman and twice in Good Housekeeping. The three most popular units in Table XII are "cup", "tablespoon", and "teaspoon". They were discovered almost exclusively in recipes in the magazines Country Gentleman, Good Housekeeping, True Confessions, and Woman's Home Companion. The terms "cubic centimeter", "cubic feet", "cubic foot", "cubic inch", and "cubic yard" were restricted to the Country Gentleman, Popular Mechanics, and Woman's Home Companion periodicals and were only counted a total of twelve times.

VI. GEOMETRIC WORDS

The three major groups of geometric expressions found in periodicals

TABLE XI

AREA EXPRESSIONS FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
acre	9	32	3	1		5	5		1	2				2	60
acreage	2	3				1									6
area	9	8	3	11		5	3	4	2	3		1	2	3	54
— feet square		1		1			1								3
foot and a half square						1									1
15 inch squares		1													1
29" square					1										1
— inches square				2			2								4
square feet				1			2	1	1						5
square foot	1					1	2		1						5
square inch				1			1	1	1					3	7
square mile												1			1
square yard	1														1

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XII

EXPRESSIONS ASSOCIATED WITH VOLUME FOUND IN
SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
board feet							1								1
bushel	4	10	1							1					16
capacity	15	3	1			1	5		2	1			2		30
cubage			1												1
cubic centimeter		1													1
cubic feet	2	1												1	4
cubic foot	1	1					1	1							4
cubic inch							2								2
cubic mass								1							1
cubic yard								1							1
cup	6	19	22	77		2					2	3	36	27	194
inch cube									1						1
peck		1		2											3
room (space)	4	1	2	3		2	3	4		1		2	3	1	26
roominers	3														3
roomy	4			3	1		5	1			1	1	2	2	20
space	8	6	8	5		6	10	5	1			1	5	2	57
spacious		1	1	3			1			1			1		8
spaciousness				1											1
spoon	1			2									1		4
tablespoon	2	18	13					1			1	3	12	19	69
teaspoon	3	15	11			1		1	1		2	4	16	18	72
volume							5						1		6
voluminous				1											1

[1] A stands for "Advertisement".

[2] I stands for "Item".

dealt with shape, figures, and parts of figures. Some of the words within the first group were "blunt", "cigar-shaped", "concave", "convex", "cup-shaped", "curvaceous", "diamond-shaped", "pyramidal", and "rectangular". Those having relatively high counts and appearing fairly well distributed throughout the periodicals were "circular", "contour", "curve", "flat", "round", "shape", and "straight".

Closely related in use to the first group of terms were the geometric figures. Many of them were noted in descriptions of various sorts. Recipes in the advertisements of Woman's Home Companion magazine contained the words "rectangle", "oblong", "cube", and "square". The expressions "triangle" and "octagon" were used in one section of Popular Mechanics to describe stamps.

A few of the parts of geometric figures recorded were "angle", "circumference", "diagonal", "diameter", and "right angle". Noticed in six of the periodicals and having frequencies of forty-five each were the words "angle" and "diameter".

VII. TERMS USED IN EXPRESSING QUANTITIES OF LIQUIDS

Table XIV is a summary of the expressions used to specify various quantities of liquids. The three terms most often noticed were "gallon", "quart", and "drop". "Gallon, found mostly in advertisements, was employed to describe the capacities of pumps and tanks. "Drop" was discovered being utilized in recipes. A few terms, "cask", "flask", and "keg", were noted in one story with a nineteenth century background. "Jigger" was found in a liquor advertisement within Time Magazine.

TABLE XIII

GEOMETRIC WORDS FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
angle	6	3	1	3	1		18	11	1		1				45
angular							1		1						2
arc				1				1							2
askew				1											1
bisect							1	1							2
block	3	1	1				1	1				1			8
blunt				1					1						2
center	10	10	6	15	1	7	17	21	1	3	3	3	4	4	105
centre			1												1
cigar-shaped							1								1
circle		6	2	5			4	2	4		8	3	3	4	41
circular		1		1			12	1			1	1	1		18
circumference	1			1			1	1	1						5
concave								1							1
concentric							1	1							2
concentricity									1						1
cone		1		1				2							4
contour	5	2	1	2	1		2	4			1	1			19
convex								1							1
cube	3	3	2	8	1	1		2					6	2	28
cubism								1							1
cup-shaped								1							1
curvaceous										1					1
curvature								1							1
curve	9	2	5	2		1	7	3	2		3	5	2	4	45
cylindrical				1			1	2							4
degree (angular)							7	3							10
45 degree angle		1													1
degree of incline							1								1
diagonal		3		1				3						3	10
diameter	1	2		2	1	1	19	13				1	2	3	45
diamond-shaped	2	2	1	1			2								8

[1] A refers to "Advertisement".

[2] I refers to "Item".

TABLE XIII

GEOMETRIC WORDS FOUND IN SELECTED PERIODICALS (Continued)

TERMS	COUNTRY GENT.		GOOD HSKFG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
3-dimensional							1								1
eccentric								2							2
figure (geometric)			1				1								2
figure eight					1										1
flat	7	2	8	1			7	5	2			1	3	2	38
flatness							1								1
form				1			1						1		3
geometric									2						2
geometry										1					1
helical							1								1
hexagon							1								1
hexes							1								1
horizontal	2	1	3		1	1	3	4							15
incline					1										1
inside diameter								3							3
line	3	1	10	3	1		2	6	4		5	2	5	3	45
middle		1	3		1	2		1	4		1	3	1	5	22
oblong			2										1	1	4
octagon							3								3
off-center								1							1
out of line					1										1
out of shape													1		1
outside diameter								1							1
oval			2	4	1		2						1	2	12
ovoid										1					1
parabola										1					1
parallel			1	1	3		3	5	1					1	15
pear-shaped				1											1
perpendicular	1						1								2
pitch (slant)	1				1		2								4
plane						1									1
pointed										1					1
prism							3	1							4

[1] A refers to "Advertisement".

[2] I refers to "Item".

TABLE XIII (Continued)

GEOMETRIC WORDS FOUND IN SELECTED PERIODICALS

	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		
TERMS	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	TOTALS
pyramidal							1								1
quadrangle					1										1
radii							1								1
radius							1	2							3
rectangle	1	1		3									3	1	9
rectangular		1		1			2								4
right angle		1					3					2			6
round	7	1	8	5		1	10		1	6	1	2	2	4	48
semicircle				1											1
shape	6	3	15	9	1	1	18	9	2	2	6	2	6	7	87
slant		1						1				1			3
slope				1	1										2
smooth	3														3
spherical						1	1								2
spiral	1						2								3
spoon-shaped		1													1
square	6	2	8	7			14	8	1	1	2	2	7	5	63
squarish				1										1	2
straight	4	3	3	8	1	1	9	3	2		1	1	3	4	43
symmetry				1										1	2
two dimensional							1								1
third-dimension			1				1								2
three dimensional		1					2		1						4
trajectory									1						1
triangle			2		1		11	1							15
triangular			1		1		1								3
u-shaped		1													1
vertical	1		1	1	1	1	3	7					1		16
v-shaped		2					3								5

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XIV

QUANTITATIVE LIQUID EXPRESSIONS FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
barrel		1							1						2
bottle	3	7	5		1	1	1		1		3	1	1	1	25
bowl	1		1										1	3	6
bucket		2												1	3
cask		1												1	2
drop	1	2	6	4	1		1	2	3		1	2	8	1	32
flask														1	1
fluid ounce		1													1
gallon	10	5	2	3		1	18	4	2				2		47
glass		3	4	2				1	2			1	2	3	18
jar	1	1	8	1	1	2					2		3	5	23
jigger									1						1
jug		2											2	2	6
keg														1	1
litre		1													1
mug		1												1	2
pail		2	1				1								4
pint	1	3	1	6			5	1							17
quart	4	10	5	5			4	2	1	1			5	4	40

[1] A stands for "Advertisement".

[2] I stands for "Item".

VIII. MONETARY UNITS

Fifteen different monetary units were noticed in the periodicals studied. These included the five slang expressions "buck", "deuce", "grand", "half-century note", and "two bits". The Italian word "lira" was counted once in an article in Country Gentleman Magazine; the Chinese unit, the "yen", was in an item in Time Magazine. "Dollar" and "cent" were the only monetary units tallied more than one hundred times.

IX. EXPRESSIONS OF TIME

Twenty-seven different English terms were found being utilized to describe different intervals of time. Of these, the common units "second", "minute", "hour", "day", "week", "month", and "year" were well distributed throughout all the seven periodicals examined. Appearing to a lesser degree were the units "century", "decade", "era", "fortnight", "generation", and "lifetime". Other terms recorded were "moment", "instant", "long", "short", "year around", "anniversary", "annual", and "centennial". Two foreign phrases, "un momento" and "onze heures moins quart", were found in Country Gentleman and Pic magazines respectively.

X. EXPRESSIONS OF WEIGHT

In addition to the well known words "ounce", "pound", "ton", "light", and "heavy", many other terms were found in periodicals to describe the weight of an object or being. These expressions included references to the weight of air, a butterfly, a feather, and a tissue. Other less common

TABLE XV

MONETARY UNITS APPEARING IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	I[2]	GOOD HSKPG. A	I	PIC A	I	POP. MECH. A	I	TIME A	I	TRUE CONF. A	I	WOMAN'S COMP. A	I	TOTALS
buck						3						1			4
cent	11	13	11	1	6	6	27	4	3	1	11	1	6	8	109
deuce						1									1
dime	4	1	3	1	3		22	2	1	1	2	2	1	1	44
dollar	16	13	9	6	3	12	37	3	6	8	1	1	2	6	123
grand			1			1									2
half-century note						1									1
half-dollar							2				1				3
lira		1													1
nickle				1	2		2	2		1	1	2		1	12
penny	7	1	5		2		30	2	1		4	2	4		58
quarter					4	2	3	2			1	1	1		14
silver dollar						1									1
two bits					2										2
yen											1				1

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XVI

EXPRESSIONS OF TIME FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
anniversary	1		1				1	2			1	1			7
annual	2	5	1	4			6	6	1	1	3	1	1	3	34
bicentennial							1								1
biennial						1									1
birthday		1				2								2	5
centennial		1													1
century	8	3	8	4	3	7	4	1	3	8	2	2	3	3	59
day	44	36	46	36	26	15	104	12	13	25	35	14	37	16	459
decade		1		1		5	1		3	1					12
era														1	1
fortnight										1					
generation	3	5	9	4	1	2	2		1	1		2	7	4	41
hour	27	24	18	20	4	18	58	21	9	8	7	12	10	13	249
instant	10	2	19	4	3	1	20	1	6		11	3	18	4	102
lifetime	10	3	2			2	28		1	2	2	1	6		57
long	44	24	51	25	7	15	38	12	12	12	10	11	18	12	291
microsecond								1							1
minute	23	23	26	13	7	13	31	13	6	6	6	14	25	25	231
moment	5	7	3	8	1	3	2	2	2	1	2	12	4	8	60
month	19	29	29	8	6	24	75	6	7	18	11	12	20	10	274
quarterly									1						1
second	3	1	6	6	3	4	23	6	4	2	4	5	4	3	74
short	5		1	2	2	2	9	1		3	2	4	2	1	34
week	22	22	9	17	3	16	48	3	4	48	7	14	11	9	233
year	92	71	66	25	28	51	141	15	23	50	26	19	34	25	666
year around	5						1		2				1		9
year round	6	2	5	1	2	2	15						1	1	35

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XVII

WEIGHT EXPRESSIONS FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A	I	GOOD HSKPG. A	I	PIC A	I	POP. MECH. A	I	TIME A	I	TRUE CONF. A	I	WOMAN'S COMP. A	I	TOTALS
airy-light			1												1
butterfly-weight			1												1
carat (of a stone)							1				3				4
double-weight								1			1				2
featherlight			3		1								3		7
featherweight					1		1								2
fluffy-light	1														1
grain		1					1						2		4
gram					1		1								2
heavy	7	6	7	6	1	1	9	4	4	1	1	1	1		49
heavyweight			1	1	1								1		4
hundredweight			1												1
karat (of a stone)											3				3
light	9	4	7		1	1	4		1		1	1			29
light as a feather							1								1
lightness			2										1		3
lightweight	4	1	6	2	4		14	2	2		3		5	1	44
net weight	1		2										3		6
ounce		3	7		1		2		1	1	1		6	11	33
overweight	1														1
pound	17	45	8	2	1	4	15	11	1			1	9	7	121
tissue-weight			1												1
ton	4	12					7	6	5	2	1		1		38
tonnage							1		2	1					4

[1] A stands for "Advertisement".

[2] I stands for "Item".

units of weight, the "carat" or "karat", the "grain", and the "gram" were noted too. Terms counted at least thirty times were "pound", "weight", "heavy", "lightweight", "ton", and "ounce". "Lightweight" was found in the three different forms: "lightweight", "light-weight", and "light weight".

XI. INDUSTRIAL AND SCIENTIFIC EXPRESSIONS

Close to half the terms in this section are related to electricity. The remaining ones are associated with a variety of things. The thirteen electrical terms account for more than two-thirds of the total frequency of Table XVIII. It is perhaps of importance to mention that words from Popular Mechanics Magazine dominate this table. Also of major significance is the fact that not one of the terms in this table was found in more than four of the periodicals scrutinized.

XII. GENERAL EXPRESSIONS OF MAGNITUDE
AND QUANTITY

This section deals with many common everyday expressions which, at first thought, we would perhaps not consider mathematical. However, if we agree that mathematics is involved in specifying the magnitude and quantities of substances and things, then we must accept these terms. It is by means of these words that we very often answer those popular questions, "How much?", and "How many ?".

In scanning Table XIX, we may notice three main groups of terms. The first of these groups deals with specific quantities and includes such words as "couple", "dozen", "pair", and "score". A second and perhaps more

TABLE XVIII

INDUSTRIAL AND SCIENTIFIC EXPRESSIONS OF MEASUREMENT
FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
amperage				1			1	2							4
ampere	2						3	1							6
carat (gold)							1								1
degree (heat)		3	1		2	1	5								11
degree centigrade								1							1
degree Fahrenheit								3							3
denier (stockings)			2										1		3
gauge (stockings)													1		1
12 gauge (gun)					1										1
horsepower	2						5	7	1	1					16
inch-pounds								1							1
karat (gold)											1				1
kilowatt			1				1								2
medium gauge (linoleum)		1													1
megacycle								1							1
megohm								1							1
milliamp							1								1
milliampere							1								1
ohm							2	1							3
proof (whiskey)										8					8
standard gauge (linoleum)		1													1
standard gauge (R.R.)							1								1
ton-mile					1										1
volt	1	1	2	1			37	5					1		48
voltage	1			1			12	5							19
watt	4	1	1			1	9	5	1						22
wattage			1				2								3
watthour							1								1

[1] A stands for "Advertisement".
[2] I stands for "Item".

TABLE XIX

GENERAL EXPRESSIONS OF MAGNITUDE AND QUANTITY
FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
all	154	57	196	55	38	41	298	24	43	34	54	19	110	37	1160
astronomical									1						1
average	11		6				5								22
bit of	6	11	3	13	1	6	3	4		1	1	6	2	7	64
both	28	24	28	21	5	15	34	20	11	17	13	11	16	18	261
bountiful													1		1
chunk				1		1		1							3
complete	54	11	56	12	12	10	280	4	15		34	6	37	7	538
considerable		1				1		1							3
countless	1	2	4	3	2		6		1		1	1	3	1	25
couple		6		3		5		2		1	1	7	2	5	32
dab of			1	1											2
dash of	1	1	2	6		1			1			1	1	1	15
double	28	6	22	19	6	3	30	10	4	2	4	5	19	12	170
dozen	10	17	5	6		4	16	5	1	2	3	7	6	6	88
dual	5		3			1	15	4					2		30
duet								1							1
duo					1										1
each	40	42	46	34	6	24	97	34	12	8	15	16	39	24	437
eightfold												1			1
endless			2				1						1		4
entire	10	9	8	13	1	10	23	9	3	5	5	4	8	7	115
every	72	20	97	23	17	15	98	9	23	10	26	14	65	9	498
excess	5			4			1						1		11
excessive	2	1		2	1			5				1			12
few	16	25	29	34	10	22	33	17	9	14	11	14	21	16	271
foursome							1								1
fraction of	2	1	2	1			6	1	1			1	2	1	18
fragment		1					1								2
freedom from8	3		1				2								6
free from	1		2		1	1	1				2	1	3	1	13
free of	1								1						2

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XIX (Continued)

GENERAL EXPRESSIONS OF MAGNITUDE AND QUANTITY
FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
full	57	21	59	16	27	16	162	12	10	12	21	9	39	15	476
generous	1		11	2			6	1				1	5	1	28
granule			1												1
group of		4	2	5			2	1	3					1	18
heaps of											1			2	3
host of							1								1
hunk		1		1		1									3
infinite				1			1		1						3
infinitesimal								1							1
innumerable							1		1						2
lack of	1	3	2	5		2	3	2	1		1	1	2	2	25
large		3		4			6	1	2						16
less	35	15	19	11	6	5	41	10	12	7	3	2	8	11	185
limitless					1	2									3
little	12	15	19	21	2	8	11	6	2	13	1	11	6	14	141
loads of			1				1							1	3
lot of	8	15	7	6	1	7	4		2	4	1	6	2	8	71
lots of	3	5	5	7			3			1		2	2	3	31
majority of	2					1				1		1		3	8
many	64	39	52	24	9	20	104	13	24	16	22	14	42	16	459
maximum	7	4	4	2	2	1	9	4	3		1	1	1		39
meagre				1											1
minimum	6	6	5	3		7	16	5	1	2		1		2	54
miniscule				1											1
minority										3					3
minute				1				4							5
mite						1							1	1	3
more	93	47	85	51	18	28	119	29	34	27	29	16	54	19	649
morsel								1				1	2		4
most	52	44	54	31	16	27	64	13	18	24	22	11	38	17	431
much	32	18	24	23	5	10	11	9	6	11	9	13	13	2	186
multiple	4		1				6								11

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XIX (Continued)

GENERAL EXPRESSIONS OF MAGNITUDE AND QUANTITY
FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	I[2]	GOOD HSKPG. A	I	PIC A	I	POP. MECH. A	I	TIME A	I	TRUE CONF. A	I	WOMAN'S COMP. A	I	TOTALS
multitude			1												1
myriad		1				1	1								3
nil														1	1
no	86	27	129	15	34	22	247	14	21	27	83	13	71	11	800
none	1	6	1	5			2		1				1		17
nothing	15	11	14	11	6		18	1	3		11		15		105
number of		11	1	2	1	6	1	4		3		2		4	35
numberless						1									1
numerous	1	3				1	2		2					3	12
once	8	11	9	17	1	15	4	7	3	9	2	14	6	14	120
pair	4	7	9	4	7	2	19	2	2	1	2	1	4	7	71
part	10	17	27	19	2	11	127	30	11	12	4	7	12	13	302
partial		2			3	1	2	3		1			1	4	17
particle			3					3	1			1			8
piece	12	8	25	29	6	4	26	16	4	2	4	2	18	6	162
pinch of				1									1		2
pittance					1										1
plentiful	1	1						1							3
plenty	15	12	12	9	2	6	12	4	8	2	2	7	9	6	106
portion		3	1	5		1		4	3				1	1	19
quads														1	1
quartette					1										1
quintet													1		1
quintuplets														1	1
scant							1								1
score	2	4	1	1			4	1		2	1				16
section	2	6	1	10	1	1	1	1	8		1	1	4	1	38
segment								1							1
set	13	5	13	3	5	3	73	3	1		3		10	2	134
several	9	23	7	16		17	6	22	2	6	2	6	5	6	127
single	10	7	8	11	2	8	37	17	6	10	4	3	8	7	138
singleton														1	1

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XIX (Continued)

GENERAL EXPRESSIONS OF MAGNITUDE AND QUANTITY
FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
singular										1					1
slight	7	8	15	13	1	3	17	13	2	2	1	5	6	3	96
small	1	3		3		1	2	3	2						15
some	12	33	12	33	5	18	15	15	6	23	3	19	7	14	215
speck of				7				1							8
sprinkle				1											1
thrice								1							1
tiny				1											1
total	3	15	1	3		6	18	4	1	3		1		5	60
tremendous	1						6	4	1					1	13
trickle														1	1
trifle	1								1	1					3
trio					1		1	1			1				4
triple	4	1	5	1	1	2	6			2		1	4		27
triplet														1	1
twice	1	6	2	6		3	1	3	3	4	3	5	5	4	46
twin	3	4	10	3	1		6	2	1	3		2	8	2	45
twosome				1											1
unlimited		2				1	13					2	3	1	22
vast		1		2	1		1							2	7
whole	14	8	17	11	2	1	5	4	4	14	6	15	16	14	131
world of					1				1				1		3

[1] A stands for "Advertisement".

[2] I stands for "Item".

colorful group is that dealing with parts of a whole. Here, we have words like "chunk", "fraction", "fragment", "portion", and "section". The third set deals with the indefinite expressions "all", "none", "more", "some", "countless", "infinite", et cetera.

The words "all" and "no" were found being used most. They appeared in such statements as, "All the fruit were in the basket" and "No potatoes were in the sack".

XIII. EXPRESSIONS OF PHYSICAL SIZE

We are occasionally confronted with the problem of describing the size of an object or individual. For a number of us the use of the words "big", "little", "large", and "small" provides an easy, if not satisfactory, solution. It may be stated that these words were the ones most frequently used by writers of the items and advertisements analyzed. However, advertisement writers in their attempts to make the size of objects more meaningful have resorted to a colorful assortment of expressions including such phrases as "bite-size", "fist-size", and pencil-size". Attempts were made by these writers to specify the size of articles by comparing them with things the reader was assumed to be familiar with.

XIV. EXPRESSIONS OF SPEED

We often find it necessary to describe in approximate terms various rates of speed. Comparisons are made with the amount of time it takes an eye to blink, with a flash of lightning, and the speed of sound. Numerous colloquial and idiomatic phrases are used too. Table XXI sums up phrases of

TABLE XX

EXPRESSIONS OF PHYSICAL SIZE FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
average size			2								1		1		4
big	40	19	37	11	6	12	80	3	14	11	14	11	24	10	292
bite-size			2	1									2		5
card-size					1										1
chubby			1												1
colossal							1	1							2
diminutive											1				1
dwarf	1	1													2
economy (size)	1				2	1			2						6
enormous				2			1	1			1	1	1		7
family (size)	1		2												3
fat				3				1							4
fist-size								1							1
full size	3		3		1		16				2		2		27
giant	9	1		2	1		10	2	1	1		2	1	1	31
gigantic								1			1				2
hand-size								1							1
huge	2	4		2		3	4	3	4	1		4		1	28
hugeness		1													1
immense	1														1
jumbo size	2												1		3
junior			1	1							8	2	2		6
large	36	33	40	30	5	15	91	24	9	9	13	7	11	13	336
life size		1	1			1	1	1							5
Lilliputian														1	1
little	7	7	18	12	1	6	5	2	4	9	3	13	11	9	107
mammoth	3	1					3				1				8
man-size				1			3								4
massive	2	1							2	2	1			1	9
medium	1	2	4	10			5			1	3	2	5		33
middle-size														3	3
midget		1					1	23							25
miniature			1				2	7	3	1	1				15

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XX (Continued)

EXPRESSIONS OF PHYSICAL SIZE FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
minute			1												1
normal	1														1
office (size)							1				1		1		3
over-size				1			5	4							10
outsize											1				1
pencil size							1								1
plump			1	1							1		1		4
pocket size							3								3
postcard-size	1						1								2
purse-size			1								2				3
quart-size	1														1
regular size			1	1	1		1							4	8
salad-bite	1														1
slim	1		6	1							2	2	2	2	16
small	17	37	25	43	2	19	62	48	4	9	7	14	16	18	321
standard-size	3		1				3				1				8
stout	1		1	1							3		1		7
tiny		7	15	11	1			13	2	1	4	6	8	4	72
trial-size											1				1
twin-size	2		1				7								10
undersize								1							1
utility-size			1												1
vast	2		1	2			1		1		1	1		1	10
vest-pocket							1								1
wallet-size							1								1

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XXI

EXPRESSIONS OF SPEED FOUND IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
at a glance					1		1								2
double quick			1												1
fast	49	9	42	3	3	8	63	10	12	3	9	4	31	5	251
hastily														1	1
high speed	2		3				16	2					1		24
high velocity	1														1
hi speed	1						2								3
in a flash							1	1							2
in a jiffy	3		6			1	4			1	1		2		18
in a twinkling											1				1
in jig time				1											1
in quick order				1											1
kwick							1								1
lightning speed							1								1
low speed	1		2	1			1	1	1				1		8
medium				1									1		2
quick	53	17	57	24	11	5	94	10	11	1	24	8	45	14	374
quick as a flash													1		1
quick as a wink				1									1		2
rapid	6	2	1	3	7	6	5	1			2	2	2	4	41
regular speed							1								1
slow	4	6	2	16	1	2	1	1	1	5		12	3	10	64
speedy	3				1		2						1		7
super speed	2		1										1		4
supersonic							1								1
swift	1		2	1	1						1			5	11
top speed	1														1
ultra-high							1								1

[1] A stands for "Advertisement".

[2] I stands for "Item".

this type found in magazines. Many expressions of definite speed like "miles per hour" were also discovered in periodicals. However, they were broken up into their various parts and tallied separately.

XV. MISCELLANEOUS MATHEMATICAL EXPRESSIONS

A list of some of the more commonly known and accepted mathematical terms is included in Table XXII. Discussions of a few of these terms follow.

At the head of Table XXII in position as well as frequency is the word "add". The high frequency of this phrase is not due so much to its employment as a number process as it is to its use in such sentences as, "Add one cup of milk to four cups of flour". Appearing mostly in advertisements and with a count of 300, the word "plus" was second in popularity. It was found almost entirely in price expressions such as "$200 plus tax".

The word "average" was used in many different senses in periodicals. A previous table lists its use in specifying quantities. In this section's table, it is listed twice: once as an average of a set of figures or as a number process; and once as an adjective in expressions like the "average man" or "average farmer".

In describing a map within an advertisement in Time Magazine, the expression "azimuthal equidistant projection" was used. It would be interesting to know how many of Time's readers knew the individual or group meaning of these three words.

One advertisement for a slide rule in Popular Mechanics Magazine

TABLE XXII

MISCELLANEOUS MATHEMATICAL TERMS FOUND
IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A¹	COUNTRY GENT. I²	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
add	31	34	53	73	6	9	48	12	12	2	9	15	47	35	386
addition							1				1				2
add up	1	2					1						2	1	7
amount		1		3			1			1					6
arithmetic			1		1		3							1	6
average	8	11	1	8		6	7	1	1	3	4	1	3	2	56
average (man etc.)	1	10			,1	6		2			3	2	3	1	29
axiomatic														1	1
azimuthal									1						1
blueprint		2			3		23			1					29
calculate	1		1	1		1	1	1		1			2		9
calculation					2	1	1	1							5
calculus				1			1								2
calibrate							3	1							4
calibration						1		1							2
chart	1	1	1	1	1	1	3	5					1		15
compute							1	1		1					3
contour map		1													1
cosine							1								1
count	5	5	3	5		7	2	1	1	2	1	2	1	3	38
decimal	1							2							3
deduct	1						2			1					4
design	19	2	33	1	3		27		4		3		8		100
diagram (floor plan)	1	1			1		6								9
divide	1	6	1	5		1	2	1		1	2	1	4	5	30
division								1							1
drafting					1		7								8
drawing (noun)		2		2			4							1	9
draw to scale								1							1
dry measure				1											1

¹ A stands for "Advertisement".

² I stands for "Item".

TABLE XXII (Continued)

MISCELLANEOUS MATHEMATICAL TERMS FOUND
IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A¹	COUNTRY GENT. I²	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
equal	7	10	3	4	3	6	9	5		4	3	4	4	10	72
equation									1						1
equidistant									1						1
equivalent		2	1	1			1	3	1		3				12
estimate		7	1	1	3	8	9	3	2					1	35
even														1	1
figgerin'			1												1
figure (number or computation)	3	11	1	1	1	4	4	2	2	4	2				35
figure out			1			1	1								3
figure up						1									1
Five Place Logarithm Tables							1								1
floor plan	3	1					2		1						7
formula	3		13		3		27	1	2	1	7		6		63
fraction			1					1	1	1			1		5
graduate	1					1	6								8
graph		1					4	1							6
graph paper		1													1
logarithm							1								1
log tables							1								1
mapping (survey)						1	2								3
math				1											1
mathematician									1						1
mathematics			1			2	9								12
mean (average)							1								1
measurable										1				1	2
measure	4	2	5	9		3	12	9	1	1		1	1	6	54
measurement								1							1
mechanical drawing							1								1
median						1									1

¹ A stands for "Advertisement".

² I stands for "Item".

TABLE XXII (Continued)

MISCELLANEOUS MATHEMATICAL TERMS FOUND
IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH. A	POP. MECH. I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S CONP. A	WOMAN'S CONP. I	TOTALS
mensuration					1										1
minus			1			2			1						4
multiplication								1							1
multiplication table						1									1
multiply	1	5		1		1	3				1			1	13
number	9	20	3	9	2	11	25	10	2	4	2	1	4	12	114
numerical						1									1
odd														1	1
odds		1				2								1	4
pattern	12	3	27	5			17	3			6		9		81
percent	1	30		5		4	2	8	1		1		1	5	58
percentage	1	1		1		3	4	2		1		1		2	16
plan (house plan)	2	1		2	1		5							1	12
plus	23	9	40	3	25	11	100	3	9	5	31	1	35	5	300
poll (survey)	1													1	2
problem						2	3	1	4						10
projection				1					1						2
proportion			3			1	2	1			1	1	2		11
proportionate						1								1	2
range	13	3	2	1		3	4	6	2		1		2	1	38
rate	2	18	2	2	1	3	14	8	3	3			1	2	59
ratio				1			3								4
roots							1								1
scale		4	1	4	2		13	4		1				2	31
scale down		1												1	2
schedule		1		1	3			1	1			1			8
score (game)		1		1	1	2	2	1						1	9
sine							1								1
square (exponent)							1								1
statistics		1		1	1	1	2		1	1					8

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XXII (Continued)

MISCELLANEOUS MATHEMATICAL TERMS FOUND
IN SELECTED PERIODICALS

TERMS	COUNTRY GENT. A[1]	I[2]	GOOD HSKPG. A	I	PIC A	I	POP. MECH. A	I	TIME A	I	TRUE CONF. A	I	WOMAN'S COMP. A	I	TOTALS
substract			1				2							1	4
sum	2			1		1			1						5
survey (poll)	6	1	4			1	4						2	1	19
survey (land)						1	2	1							4
table	1			1		1	2								5
Tables of Trigonometric Functions of Angles							1								1
tally						1									1
tangent							1								1
time (v)			1												1
timetable							1		1					1	3
total				1			1			1			1		4
trig				1			1								2
weigh	8			4	2	1	11						4		30

[1] A stands for "Advertisement".

[2] I stands for "Item".

contained all the following expressions: "multiply", "divide", "root",
"ratio", "percentage", "square", "area", "circle", "radii", "volume", "hour",
"mathematics", "arithmetic", "calculus", "calculation", "log tables",
"five place logarithm tables", and "tables of trigonometric functions of
angles".

The split form of the word "blueprint", that is "blue print",
appeared three times in Popular Mechanics Magazine. Similarly, the word
"percent" appeared forty-two times in its split form "per cent". Good
Housekeeping and Popular Mechanics favored the integrated form of "percent"
while the other periodicals favored the divided form.

XVI.   ABBREVIATED MATHEMATICAL EXPRESSIONS

In the seven periodicals examined, eighty-four different abbreviated
mathematical expressions were found. These terms were tallied a total of
1256 times. When we compare this total with the 1496 pages in the selected
magazines, we note that approximately five of these abbreviations appeared
in every six pages of reading matter.

An examination of Table XXIII reveals that in some cases two or more
abbreviations were used to refer to the same thing. Thus we have "appr."
and "approx." meaning "approximate"; "tablesp.", "tbs.", and "tbsp."
meaning "tablespoon". Opposed to this, we have cases where the same expres-
sion was used to refer to more than one thing. So, the letter "C" was
employed to refer to "cup", "hundred dollars", and "cent".

Accounting for about three-tenths of the total frequency were the
terms "lb.", "min." (minute), and "No." (number). Two of these, "lb." and

TABLE XXIII

ABBREVIATED MATHEMATICAL EXPRESSIONS FOUND IN SELECTED PERIODICALS

ABBREVIATIONS	COUNTRY GENT. A[1]	I[2]	GOOD HSKPG. A	I	PIC A	I	POP. MECH. A	I	TIME A	I	TRUE CONF. A	I	WOMAN'S COMP. A	I	TOTALS
A.M. (ante meridian)		1			1	1	2	1	2						8
amp. (ampere)							14								14
appr. (approximate)							3								3
approx. (approximate)	1						11								12
B.T.U.							4								4
C (cup)													6		6
C (hundred dollars)					1										1
cal. (caliber)							4								4
cap. (capacity)	1														1
c.f.m.							3								3
cubic ft.							1								1
cu. ft.	4						1								5
cu. in.							4								4
dbl. (double)							1								1
deg. (angular measure)								2							2
45 deg. angle								2							2
90 deg. angle								1							1
deg. F.								1							1
dia. (diameter)							15	9							24
diam. (diameter)							2								2
doz.	2		1	2			4						1		10
ea. (each)	3						18								21
est. (estimated)		1													1
fld. oz. (fluid ounce)							1								1
fluid oz.			1						1				2		4
ft.	7	1	2			1	22	3	1	4	1				42

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XXIII (Continued)

ABBREVIATED MATHEMATICAL EXPRESSIONS FOUND IN SELECTED PERIODICALS

ABBREVIATIONS	COUNTRY GENT.		GOOD. HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
ft. lbs. (foot pounds)							1								1
gal.	2			1			8	1							12
gal. per hr. (gallons per hour)							1								1
G.P.H. (gallons per hour)	1						1								2
G.P.M. (gallons per minute)	1						3								4
h.p. (horsepower)	8	2					40	1							51
H.P. (horsepower)	1						1								2
hr. (hour)				15			2	1					1		19
ht. (height)				1											1
I.D. (inside diameter)								1							1
I.Q.		1										1		1	3
in. (inch)	6		4				11	20			2		6		49
in. square	1														1
K. (karat of gold)	1		1		3		4		1		2				12
Kt. (karat of gold)											3				3
Kt. (karat of stones)							1				1				2
k.v.a.							2								2
K.W.	1						2								3
lb.	15	1	13	34	3	1	49	3	4	3	1		14		141
linear ft.	1														1
lth. (length)							1								1
max. (maximum)							3								3
med. (medium)							1								1

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XXIII (Continued)

ABBREVIATED MATHEMATICAL EXPRESSIONS FOUND IN SELECTED PERIODICALS

ABBREVIATIONS	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
mi. (mile)									1						1
min. (minute)	1		3	72			7	3					9		95
mm. (millimeter)						1	19		1						21
mo. (month)	1		1	1			2								5
m.p.h.	1	1				1	8	1	1	2					15
net wt.							1			1					2
No. (number)	21	7	15	7	6	7	42	7	3	2	3	1	12		133
O.D. (outside diameter)							1	1	1						3
oz.	4	1	11	15	1		15	1	5	1		3	9		66
P.M. (Post meridian)	2	2	1		1	1	3		3		1		1		15
pc. (piece)	1		3				4						2		10
pr. (pair)	1		3		1		8								13
p.s.i. (per square inch)							5								5
pt. (pint)	1			2			2								5
qt. (quart)	1		4	20	1		7	1					7		41
r.p.m.							32								32
sec. (second of time)								2							2
sq.				2			2	7							11
sq. ft.	1			1			3						1		6
sq. in.							4								4
sq. inch							1			1			2		4
sq. yd.	1														,1
tablesp. (tablespoon)	1			68	1										70
tbs. (tablespoon)	1		2										5		8
tbsp. (tablespoon)				4									8		12

[1] A stands for "Advertisement".

[2] I stands for "Item".

TABLE XXIII (Continued)

ABBREVIATED MATHEMATICAL EXPRESSIONS FOUND
IN SELECTED PERIODICALS

ABBREVIATIONS	COUNTRY GENT. A[1]	COUNTRY GENT. I[2]	GOOD HSKPG. A	GOOD HSKPG. I	PIC A	PIC I	POP. MECH, A	POP. MECH, I	TIME A	TIME I	TRUE CONF. A	TRUE CONF. I	WOMAN'S COMP. A	WOMAN'S COMP. I	TOTALS
teasp. (teaspoon)			1	78											79
tsp. (teaspoon)	2		8										17		27
v.							17	3							20
w.	1						2								3
wghs. (weighs)	1														1
wgt. (weight)							5								5
wk. (week)	1						2								3
wt. (weight)				1			20						1		21
yd.	1	3	2				2		1		1		1		11
yr.	1	7					3			1					12

[1] A stands for "Advertisement".

[2] I stands for "Item".

"No.", were found well distributed among the various periodicals and could not in any way be said to have been favored by any one periodical.

XVII. MATHEMATICAL SYMBOLS

Symbols were employed mostly in monetary matters or expressions in the seven periodicals examined. Seven symbols used in place of the words "dollar" and "cent" accounted for more than two-thirds of all signs considered. Of the four expressions for a dollar the "S" with a single straight line through it had the largest count. The outstanding symbol for a cent was the letter "c". For purposes of comparison this letter "c" (meaning cent), which may have justly been classified with abbreviations, has been placed in this list. It should be mentioned that infrequently there appeared more than one type of dollar or cent sign within the same advertisement.

Outside of the monetary units, the most frequently appearing symbol was ", the inch sign. This was followed with lessening scores by the signs %, X (meaning "by"), and $^{\circ}$ (meaning heat degree). In almost every instance in which the heat degree symbol was noticed the letter "F" also appeared to indicate that degree Fahrenheit was intended. The symbol ' was found twenty-three times being used to describe feet of distance, but in no case was it noted referring to angular minutes of measurement.

TABLE XXIV

MATHEMATICAL SYMBOLS FOUND IN SELECTED PERIODICALS

SYMBOLS	COUNTRY GENT.		GOOD HSKPG.		PIC		POP. MECH.		TIME		TRUE CONF.		WOMAN'S COMP.		TOTALS
	A[1]	I[2]	A	I	A	I	A	I	A	I	A	I	A	I	
$	60	4	31	1	34	41	14		5	2	15		22		229
$	51	24	105	18	43	5	708	3	12	37	60	7	62	3	1138
₷	11		12		6		55		2		12		21		119
℔					1		1								2
¢	14	1	35	3	5	2	14		5	5	20		24	1	129
¢	4		10	1	1		13		4		4		5		42
c (cent)	34	2	40	7	6		366		1		28	2	26		512
" (inches)	17	6	14	45	14		138	21	2		1		9		268
' (feet)	2	3	1	3		1	12		1						23
o (angular)	1						12	1							14
o (heat)	6	10	11	34			3	2	2			3	15	13	99
+			2	2					1				1	2	8
- (minus)			1												1
=				1			1		1					2	5
%	35	2	24	3	12	3	89	1	8	13	15	1	17		223
X (by)	10	5	9	13	3	2	70	12			5	1	11		141
#	1	1	7				22	1	1		4		3		40

[1] A stands for "Advertisement".

[2] I stands for "Item".

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Perhaps the outstanding conclusion to be reached after perusing the data in Chapters II and III is this: mathematics was present in large quantities in the periodicals analyzed. It is therefore recommended that students be guided in developing an appreciation of the importance of mathematics in current magazines.

Significant conclusions and specific recommendations follow.

I. NUMBERS

On the average, more than three integers from the range 0-99 were encountered in each item or advertisement. Similarly, about one integer from the range 100-9999 was recognized in each unit of reading matter. The ability to read and understand the Arabic numerals 0-9999 is essential to intelligent reading.

The relatively small counts of fractions with denominators of 6, 7, and 9 is important. It is suggested that further studies be made in newspapers, business, et cetera to confirm this tendency. If and when it has been substantiated, the following recommendations should be adopted: greater emphasis should be placed on fractions with denominators of 2, 3, 4, and 8; fractions with denominators of 16 and 32 should receive more emphasis than, or possibly replace, those fractions with denominators of 6, 7, and 9.

A familiarity with one- and two-place decimals is adequate to read the

decimals in Good Housekeeping, Pic, Time, True Confessions, and Woman's
Home Companion magazines. Knowledge of three place decimals, as well as
one-and two-place, is needed for Country Gentleman. Popular Mechanics
requires an understanding of one, two, three, and four-place decimals.
Ability to read a decimal of more than four places was not necessary in the
seven chosen magazines.

Since mixed decimals were noted more often than pure decimals, they
should be stressed more in our teachings.

Very few Roman numerals existed in the selected periodicals. Less
than one unit of reading matter out of every hundred examined had either the
Roman numeral I or II. When we consider that "I" and "II" had, by far, the
larger frequencies for Roman numerals, we may better realize how little this
class of numbers were used. If other phases of life make as little use of
these numbers, the time alloted for their study in our classrooms should be
considerably reduced.

II. WORDS

The cardinal numbers one to ten, twenty, thirty, forty, fifty, sixty,
hundred, thousand, and million were well distributed throughout the
periodicals. The ability to read them was essential to complete understand-
ing of many passages. Worthy of comment are the relatively high counts of
"million" and "billion. "Million" seemed to be a pretty well established
word in the magazines. The fact that "billion" was noted in six of the
seven periodicals is significant. It would appear that schools could do a
service to their students by setting aside some school time for the

development of the concepts of a million and a billion.

Pupils should be made alert to such limiting or qualifying words as "almost", "around", and "nearly" appearing in periodicals. To be able to recognize them and to understand what they imply is of much benefit in arriving at sensible and reasonable conclusions.

The English units of measurement the "inch", "foot", "yard", and "mile" ought to be well comprehended by students. They were the length units used most often by writers. "Yard" failed to appear in but one magazine, True Confessions. All the other terms were noted in each of the periodicals analyzed.

The word "acre" was not restricted in usage to the rural magazine Country Gentleman. It also was present in Good Housekeeping, Pic, Popular Mechanics, Time, and Woman's Home Companion. All pupils, urban as well as rural, should be taught how large an acre is. An understanding of this concept would enrich the meanings students derived from reading.

"Cup", "tablespoon", and "teaspoon" are three words of measurement essential to an intelligent reading of recipes. "Tablespoon" and "Teaspoon" are possibly self explanatory. The term "cup" as a unit of measurement should be made clear to all those people who use or will use recipes.

The geometric terms "circular", "contour", "curve", "flat", "round", "shape", "straight", "square", "angle", and "diameter" were noted frequently in periodicals. They are recommended for inclusion in a basic reading vocabulary.

"Gallon", "quart", and "drop" are the three liquid units whose scores make them worthy of mention. "Drop" was seen in all periodicals. "Gallon"

was missing only from True Confessions. "Quart" was absent from Pic and True Confessions.

Since the time units "second", "minute", "hour", "day", "week", "month", and "year" were noticed very often in all magazines, it would seem imperative that students fully comprehend them.

The "ounce", "pound", and "ton" are the three units of weight that should be given primary consideration in schools.

III. ABBREVIATIONS AND SYMBOLS

There were many different mathematical abbreviations in the periodicals examined. Some abbreviations had more than one meaning depending on the context. Pupils should be taught the meanings of several abbreviations, especially the following: "ft.", "in", "lb.", "min." (minute), "No.", "oz." and "qt.".

A small variety of mathematical symbols were discovered in the seven selected magazines. The signs $ for dollar, c for cent, " for inch, ° for heat degree, % for per cent, and X for by were prominent. They make up a minimum list of symbols that should be made clear to students.

SUGGESTIONS FOR FURTHER STUDY

In formulating, pursuing, and completing this study, the investigator noted many related problems that were not answered by this investigation. Some were attempted but had to be abandoned because of the limited amount of time available. Brief titles of these problems follow:

1. The Mathematical Content of Newspapers (or Books)

2. Mathematical Concepts in Books (or Magazines, or Newspapers)

3. Mathematical Figures, Charts, and Diagrams in Books, Magazines, and Newspapers

4. Mathematical Instruments Mentioned in Books, Magazines, and Newspapers

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BOSTON UNIVERSITY

GRADUATE SCHOOL

———

An Abstract of a Thesis

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by

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I. THE PROBLEM, DATA, AND PROCEDURE

What numbers and mathematical terms are there in current periodicals? How frequently do they appear? Answers to these questions are of obvious interest to curriculum builders in planning a mathematics program of study.

The October 1948 issues of the ensuing magazines were analyzed for their mathematical contents: Country Gentleman, Good Housekeeping, Pic, Popular Mechanics, Time (October 4, 1948), True Confessions, and Woman's Home Companion.

Each item or advertisement in those periodicals was considered a separate unit of reading matter. A number, word, abbreviation, or symbol was counted but once in an advertisement or item even though it may have appeared several times within that same unit.

Multi-meaning words such as "foot", "yard", "knot", "line", and "angle" were only considered when they were clearly mathematical from their contexts.

Adverbs ending in "ly" and participles were tallied under their base forms. Similarly, the comparative and superlative forms of adjectives were listed under their positive forms when they had the same roots.

Plural words made by adding "s" or "es", or by dropping the "y" and adding "ies" were recorded under their singular forms.

Verbs to which "d" or "ed" had been added to form adjectives or past tenses were grouped according to their infinitive forms.

To facilitate and make consistent the selection of words, symbols, and abbreviations, the following list of criteria were set-up:

1. deals with magnitude, quantity, size, or number

2. deals with geometric figure, shape, or position

3. deals with part of a geometric figure

4. deals with a unit of measure

5. deals with a number process

6. deals with accuracy, approximation, and precision

II. FINDINGS

The four major types of numbers found in the examined periodicals are: integers, fractions, decimals, and Roman numerals.

Integers appeared most frequently. On the average, more than three integers from the range 0-99 were encountered in each item or advertisement. Similarly, about one integer from the range 100 to 9999 was recognized in each unit of reading matter. Five, six, seven, eight, nine, and ten place integers were also recorded. No integer with more than ten places was noted. Double integers or numbers having the forms 7^{95}, $7\underline{25}$, and 7^{95} were discovered exclusively in advertisements. Approximately one of these numbers was noticed in every twelfth advertisement analyzed.

The second most prominent type of number found is the decimal. Usually, although not always, it was combined with an integer to for a mixed decimal. About ninety-three per cent of all decimals tallied are two place decimals. The one, three, and four place decimals follow in this order. No other decimals were noted. Mixed decimals, particularly those made up of an integer and a two place decimal, were employed considerably in describing the costs of articles and services.

Within the seven periodicals scrutinized forty-eight different frac-
tions were noticed. Accounting for ninety per cent of the total count for
this type of number were the following: 1/2, 1/3, 2/3, 1/4, 3/4, 1/8, 3/8,
5/8, and 7/8. These fractions had individual percentages of forty-four, four,
two, seventeen, ten, six, three, three, and one respectively. It is perhaps
interesting to state that fractions with a denominator of 16, appearing
entirely in Country Gentleman and Popular Mechanics magazines, accounted for
five per cent of the total frequency. Another significant point is the
relatively low frequencies of fractions with denominators of 6, 7, and 9.
Counted twice was 1/6; 1/7 was noted once. No fraction with denominator of
9 was seen.

The least common of the numbers in the periodicals studied are the
Roman numerals. Only eighty-two of these numbers were found. The numbers
I to XII appeared together three times: twice in reference to sets of books;
once on the face of a clock. Roman numerals I and II were noticed much in
such phrases as World War I and World War II. A few numerals were associated
with names such as Henry VII and Louis XV. Used in reference to the volume
numbers of magazines were the numerals LII and LXXV.

There was an abundance of mathematical terms in the periodicals
perused. Almost every item and advertisement examined had at least one
mathematical term.

Cardinal numbers were the largest group of number words revealed by
this study. Within this group, the numbers "one" to "ten" appeared most
often. A tendency was noticed for relatively high frequencies to be located
at the multiples of ten. The terms "hundred", "thousand", "million", and

"billion" were well distributed throughout the magazines and also enjoyed large scores.

The second and third groups of spelled-out numbers were the ordinals and fractions. Many of the ordinals were associated with street names. "Fifth Avenue" was a popular expression in advertisements. Found in recipes and accounting for many fractions were such phrases as "to cut in half", "to quarter", and "to cut in eighths".

The more frequently noticed units of length, area, and volume were: "inch", "foot", "yard", "mile", "acre", and "cubic foot". "Inch" was counted 218 times or close to double the tally for the next most popular length unit "foot". "Mile" and "yard", with frequencies of 102 and 46 respectively were third and fourth. The word "acre" seen in six of the seven periodicals was the most common area unit. Area expressions which had frequencies of seven or less are : "square feet", "square foot", "square inch", "square yard", "square mile", "foot and a half square", and "15 inch squares".

If the three cooking units "cup", "tablespoon", and "teaspoon" be considered volumetric units, then they stand at the head of the list for volume. "Cup" was tallied 194 times; "tablespoon" 69; and "teaspoon" 72. "Bushel" and "peck" were counted 16 and 3 times respectively.

The three major groups of geometric expressions in the examined periodicals dealt with shapes, figures, and parts of figures. A few of the words in the first group having comparatively high counts and being well distributed throughout are: "circular", "contour", "curve", "flat", "round", "shape", and "straight". Some of the names of figures recorded are : "rectangle", "oblong", "cube", "square", "triangle", and "octagon". Present

in six of the periodicals and having frequencies of forty-five each were the words "angle" and "diameter". Other commonly used terms were "circumference" and "diagonal".

"Gallon", "quart", and "drop" are the popular liquid units utilized by writers.

Of the fifteen different monetary units found five are the slang expressions "buck", "deuce", "grand", "half-century note" and "two bits". Noticed once each were the foreign units "lira" and "yen". "Dollar" and "cent" are the only monetary units tallied more than one hundred times.

Twenty-seven English terms were found being utilized to describe different intervals of time. Of these, "second", "minute", "hour", "day", "week", "month", and "year" were well distributed in the seven periodicals. Having smaller counts are the words "century", "decade", "era", "fortnight", "generation", and "lifetime".

The more prominent weight units discovered are "ounce", "pound", and "ton" with frequencies of 33, of 121, and 38 respectively.

"Ampere", "degree" (heat), "horsepower", "ohm", "volt", and "watt" are some of the scientific units of measurement discovered in the magazines. Not one of these terms was noted in more than four periodicals

The terms "couple", "double", "dozen", "once", "pair", "score", "single", "twice", were expressions of definite quantities which had relatively high counts and were well placed throughout all periodicals.

A few of the commonly known and accepted mathematical terms found in the magazines are : "arithmetic", "average", "calculate", "calculus", "calibrate", "compute", "cosine", "count", "decimal", "deduct", "divide",

"equation", "estimate", "figure", "fraction", "graph", "logarithm", "math",
"mean", "median", "mensuration", "minus", "multiplication", "number", "odd",
"per cent", "percent", "percentage", "plus", "proportion", "ratio", "sine",
"square" (exponent), "statistics", "sum", "tangent", and "total". In general
these terms were noted infrequently and had low counts.

Eighty-four different abbreviated mathematical expressions were
present in the selected periodicals. Approximately five of these abbrevia-
tions appeared in every six pages of reading matter. Four terms with high
frequencies are "lb.", "min." (minute of time), "oz.", and "No.". A sample
of other abbreviations found follows: "amp.", "cu. ft.", "cu. in.", "deg."
(angular measure), "deg. F.", "diam.", "gal!", "h.p.", "I.D.", "in.", "m.p.h.",
"O.D.", "pr.", "qt.", "sq. ft.", "yd.", and "yr.".

The symbols in the periodicals examined were employed mostly in
monetary expressions. Seven symbols used in place of the words "dollar" and
"cent" account for more than two-thirds of all signs considered. The most
popular symbol for a dollar was "$". The letter "c" was the favorite for a
cent. Other symbols for dollars and cents found in the periodicals are $, ⨍,
$, ¢, and ⨍.

Outside of the monetary units, the most frequently appearing symbol
was ", the inch sign, with a score of 268. The per cent sign, %, was tallied
243 times, and X (meaning "by") had a count of 141. The symbol ° was used to
indicate two different things: as a heat unit it had a tally of 99, as a
unit of angular measure it had a score of 14. Other symbols noticed in the
magazines are ' (feet), +, - (minus), =, and #.

III. SUGGESTIONS

On the basis of these findings the following suggestions are made:

1. an appreciation of the mathematical content of periodicals should be developed in our students.

2. fractions with denominators of 1/2, 1/3, 2/3, 1/4, 3/4, 1/8, 3/8, 5/8, and 7/8 should be stressed more in our teachings than those with denominators of 6, 7, and 9.

3. fractions with denominators of 16 and 32 ought to receive more emphasis in schools.

4. mixed decimals should be emphasized more than pure decimals.

5. less time should be devoted to the study of Roman numerals.

6. concepts of a million and a billion should be made meaningful to students.

7. "inch", "foot", "yard", "mile", "acre", and "cubic foot" are the units of length, area, and volume which should be stressed most.

8. "cup", "tablespoon", and "teaspoon" are the three cooking units which education should make absolutely clear to future users of recipes.

9. the vocabulary to be developed from a geometry course should include the following words: "circular", "contour", "curve", "flat", "round", "shape", "straight", "rectangle", "oblong", "cube", "square", "triangle", "octagon", "angle", and "diameter"

10. the time units "second", "minute", "hour", "day", "week", "month", "year" ought to form a basic list of time expressions to be learned by pupils. "Century", "decade", "era", "fortnight",

"generation" and "lifetime" are other expressions that may be included.

11. the units of weight that should receive primary attention are the "ounce", "pound", and "ton".

12. an understanding of the scientific units of measurement "ampere", "degree" (heat), "horsepower", "ohm", "volt", and "watt" should be taught by the mathematics as well as the physics teacher.

13. "couple", "double", "dozen", "once", "pair", "score", "single", and "twice" are mathematical words that should be included in basic vocabulary of our students.

14. the four abbreviated mathematical expressions that should be stressed most are "lb.", "min." (minute of time), "oz.", and "No."

15. the list of the mathematical symbols taught in our schools should include the following: $, ₰, ₰, ₰, ¢, ₵ , c, " (inch), %, X (by), ° (heat degree), ° (angular degree), ' (feet), +, - (minus), =, and #.